

# KENWOOD

## VHF/UHF FM Repeater-Base Units

# TKR-750/850

**High-performance features — such as 16 full-duplex channels, flash memory, and PC/manual tuning — provide crystal-clear and reliable communications to make Kenwood's TKR-750/850 VHF/UHF FM repeaters the first choice for demanding applications.**

### HIGH STABILITY 100 % CONTINUOUS DUTY

The TKR-850's high stability 1.5PPM (2PPM for TKR-750) TCXO modules, 100% duty RF power amplifier (25W output), integrated die-cast heat sink and forced-air cooling provide site-friendly reliable 24/7-operation. The TKR-750 high power output is 50W (at 50% duty) a TKR-850 is 40W (at 50% duty).

### 16 FULL-DUPLEX CHANNELS & SINGLE PRIORITY SCAN

With 16 full-duplex channels, these versatile repeaters can function as a base station or repeater backup unit to suit various applications. The built-in 16 channels are preset and selectable from a remote control utilizing the remote I/O connector or pre-programmed key on the front panel. The programmable function (PF) keys located on the front panel permit adjustment and testing of repeater sites. In addition, single priority scan is available when the unit is operating in simplex mode.

### QT/DQT WITH DSP MULTI-DECODE

For QT/DQT groups sharing the same RF signal range, DSP processing allows up to 16 QT/DQT signal variations to be processed simultaneously via the multi-decode function. Two decode tables (main/sub) are available to facilitate the setup of channels to different multi-decode ranges.

### COMPANDED AUDIO

A built-in compander contributes to improved audio when operating as a simplex base station. A wide/narrow setting is available for each channel.

### FLASH MEMORY

Flash memory permits updates, advanced feature sets and system architectural changes to be made electronically without ever opening the unit. This means faster modifications for system operators and less downtime for users.

### 2-DIGIT NUMERIC LED DISPLAY

The 2-digit numeric LED on the front panel displays channel number and operational status information, such as an "unlocked" error.

### LED INDICATORS

The LED indicator lights provide clear system status information at a glance, including transmit, receive, battery backup, and DC power. If the transmitter or receiver becomes unlocked, the LEDs flash for quick problem assessment.



### WIDE/NARROW CHANNEL BANDWIDTH PER CHANNEL

The TKR-750/850 can handle both existing wide-band systems and emerging narrow band applications for extra flexibility and long-term viability. For VHF channels, compatibility is provided for a minimum frequency of 2.5kHz (U.S.A. only).

### WINDOWS® PROGRAMMING AND TUNING SOFTWARE

The repeater can be programmed from a Windows® compatible PC quickly and efficiently — without ever opening the case — using the optional FPU and programming interface cable.

Among the radio parameters available for programming are:

- Squelch
- RX audio signal output (RA)
- RX detector signal output (RD)
- RX frequency
- RF output power
- Maximum deviation
- TX audio input (TA)
- Signaling deviation (TD)
- DQT balance
- QT deviation
- DQT deviation
- Test tone deviation
- CW ID deviation
- Repeat gain
- TX frequency

Manual tuning is available for the following settings: RX helical resonator block bandwidth, MCF waveform, Quad detector coil, and MIC sensitivity.

### 6 PF KEYS & LOCAL SPEAKER

In addition to 6 programmable function keys (each equipped with an LED indicator), the front panel has a built-in speaker. This makes it easy to check on repeater site reception conditions. There is also a microphone terminal to allow audio transmission.

### EMBEDDED MESSAGE WITH PASSWORD LOCK

The repeater's flash memory can store an electronic message — with password protection — containing owner identification, property ID numbers, user and department names, service records, etc. Additionally, the FPU can be used to display an electronic serial number. A unit can thus be electronically identified even if the external labels, marking or factory serial numbers have been removed.

### EXTERNAL CONTROL I/O

The D-SUB25 connector on the rear panel provides a control I/O interface for external controllers to enable customization and integration with other features and capabilities.

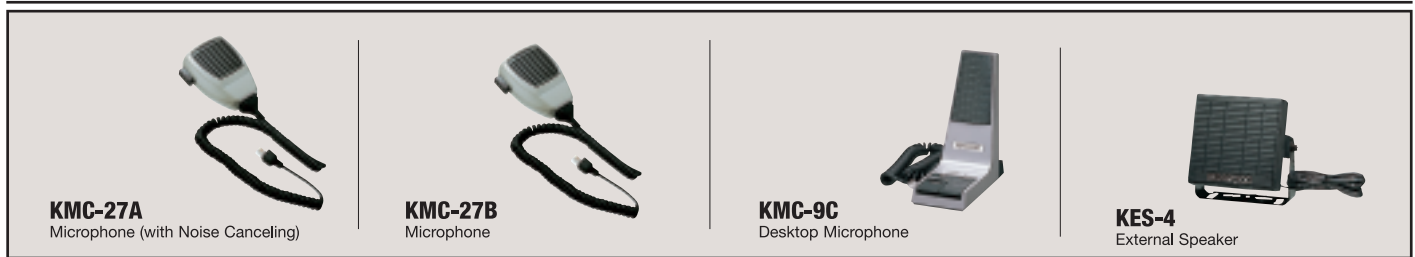
### BATTERY BACKUP SYSTEM

Several power-saving features, including a display-off function, help to reduce consumption. A built-in backup system supports automatic switching to a 12v battery\* if the AC-based power supply\* fails.

\*Not supplied



# Options



\* Not all accessories may be available, please contact dealers for details.

# Specifications

|  | TKR-750  | TKR-850                                      |
|--|--|--|
| <b>GENERAL</b>   |  |  |
| Frequency Range<br>Type 1:<br>Type 2:  | 146 ~ 174 MHz<br>136 ~ 150 MHz   | 450 ~ 480 MHz<br>480 ~ 512 MHz               |
| Number of Channels   | 16   |  |
| Channel Spacing<br>Wide<br>Narrow<br>(PLL channel stepping)                          | 30, 25 kHz<br>15, 12.5 kHz<br>(2.5, 5, 6.25, 7.5 kHz)  | 25 kHz<br>12.5 kHz<br>(5, 6.25 kHz)          |
| Operating Voltage  | 13.6 V DC ±15%   |  |
| Current Drain<br>Standby<br>Standby<br>(w/power save)<br>Receive<br>Transmit/Receive | 0.8 A<br>0.3 A<br>Operating mode; DC-IN:Backup, FAN:Temp, SAVE:On, DISP:Off<br>1.2 A<br>Less than 13 A |  |
| Duty Cycle   | Receive: 100%, Transmit: 100% at 25 watts  |  |
| Frequency Stability  | ±0.0002%<br>(-22° F ~ +140° F)   | ±0.00015%<br>(-22° F ~ +140° F)              |
| Operating Temperature Range  | -22° F ~ +140° F<br>(-30° C ~ +60° C)  |  |
| Dimensions (W x H x D)   | 19 x 3-1/2 x 13-1/3 in. (483 x 88 x 340 mm)  |  |
| Weight (net)   | 21.4 lbs. (9.7kg)  |  |
| FCC ID<br>Type 1:<br>Type 2:   | ALH31103110<br>ALH31103120   | ALH31113110<br>ALH31113120                   |
| FCC Compliance<br>Type 1:<br>Type 2:   | 22, 74, 90<br>90, 90.210   | 22, 74, 90, 95<br>90, 90.210                 |
| CANADA IC (RSS119)<br>Type 1:<br>Type 2:   | 282195726A<br>282195742A   | 282195725A                                   |
| <b>RECEIVER (Measurements made per TIA/EIA-603)</b>                                  |  |  |
| Antenna Impedance  | 50 Ω   |  |
| Sensitivity:<br>12 dB SINAD<br>20 dB quieting  | 0.35 μV<br>0.45 μV   |  |
| Selectivity<br>Wide<br>Narrow  | 85 dB at ±30 kHz<br>80 dB at ±15 kHz<br>77 dB at ±12.5 kHz   | 83 dB at ±25 kHz<br>75 dB at ±12.5 kHz       |
| Intermodulation<br>Wide<br>Narrow  | 80 dB at ±30,60 kHz<br>75 dB at ±15,30 kHz   | 78 dB at ±25,50 kHz<br>75 dB at ±12.5,25 kHz |
| FM Hum & Noise<br>Wide<br>Narrow   | 50 dB<br>45 dB   |  |
| Audio Output (Ext. Speaker)  | 4 W (at 4 Ω, less than 5% distortion)  |  |
| Spurious & Image Rejection   | 90 dB  |  |
| Audio Distortion<br>(Ext.Speaker)  | Less than 2.5% at 1000 Hz  |  |
| Band Spread<br>Type 1:<br>Type 2:  | 3 MHz<br>3 MHz   | 5 MHz<br>5 MHz                               |

|  | TKR-750  | TKR-850   |
|--|--|---|
| <b>TRANSMITTER (Measurements made per TIA/EIA-603)</b>   |  |   |
| RF Power Output  | 50 W adjustable to 25 watts<br>(100% duty at 25W)  | 40 W adjustable to 25 watts<br>(100% duty at 25W) |
| Antenna Impedance  | 50 Ω   |   |
| Type of Emission<br>Wide<br>Narrow   | 16K0F3E<br>11K0F3E   |   |
| Spurious Response<br>Harmonics<br>Others   | 80dB<br>80dB   | 80dB<br>75dB                                      |
| FM Hum & Noise<br>Wide<br>Narrow   | 50 dB<br>45 dB   |   |
| Microphone Impedance   | 600 Ω  |   |
| Audio Distortion   | Less than 3% at 1000 Hz  |   |
| Band Spread<br>Type 1:<br>Type 2:  | 28 MHz<br>14 MHz   | 30 MHz<br>32 MHz                                  |
| <b>REPEATER CONTROL (Measurements made per TIA/EIA-603)</b>  |  |   |
| Signaling (simultaneously)<br>Maximum Number of Tones  | 16   |   |
| QT Decoder/Encoder<br>Tone frequency<br>Decoder response time<br>Squelch tail elimination time<br>Encoder frequency error<br>Sensitivity | 67.0 ~ 210.7Hz (0.1Hz step)<br>250ms or less<br>140 to 200 ms<br>±0.3% or less<br>SINAD 8dB or less  |   |
| DQT Decoder/Encoder<br>DQT code<br>Decoder response time<br>Turn-off code transmission time<br>Sensitivity                               | 23 bits total: a 3-digit octal number (0 ~ 7,12bits) with error correction (11bits)<br>250ms or less<br>140 to 200 ms<br>SINAD 8dB or less           |   |
| Time-out Timer   | Off to 30 min.   |   |
| Repeat Hold Time   | Off to 10 sec.   |   |
| <b>EXTERNAL CONTROL</b>  |  |   |
| CWID<br>Maximum modulation<br>CW tone frequency<br>Morse code speed<br>Maximum character memory  | Maximum deviation of 40%±10%<br>400Hz to 2000Hz, (default 800Hz)<br>5 to 30 word per minutes, (default 20WPM)<br>Up to 32 characters (include space) |   |
| CW Message<br>Maximum character<br>Number of banks   | Up to 32 characters per bank (include space)<br>8 banks  |   |
| Test Tone<br>Maximum modulation<br>Test tone frequency   | Maximum deviation of 60%<br>300Hz to 3000Hz (default 1000Hz)   |   |

Kenwood follows a policy of continuous advancement in development. For this reason specifications may be changed without notice.

## KENWOOD ELECTRONICS AUSTRALIA Pty Ltd

16 Giffnock Avenu, Centrecourt Estate  
North Ryde, New South Wales 2113

Ph: (02) 8879 2266 Fax: (02) 8879 2233

Email: comdept@kenwood.com.au

Website: www.kenwood.com.au



**JQA-1205 ISO 9001**  
Communications Equipment Division  
Kenwood Corporation  
ISO9001 certification

This has been printed on recycled paper.  
CL380KP-E-2(00) 010208B Printed in Japan